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CLAIMS

Rigid material based on PPO and an aromatic vinyl resin with improved impact strength comprising:

- 99 to 20% of a resin (A) consisting of a mixture of PPO and of an aromatic vinyl resin,
 - 1 to 80% of an impact modifier comprising at least one block copolymer S-B-M in which:
 - each block is linked to the other by a covalent bond or an intermediate molecule linked to one of the blocks by a covalent bond and to the other block by another covalent bond,
 - M consists of MMA monomers optionally copolymerized with other monomers and comprises at least 50% by weight of methyl methacrylate (MMA),
 - > B is incompatible with the resin (A) and with the M block and its glass transition temperature to is less than the temperature for using the rigid material,
 - > S is incompatible with the B block and the M block and its Tg or its melting point m.p. is greater than the Tg of B,
 - S is compatible with the resin (A)
 - 2. Material according to Claim , wherein the M blocks consist of syndiotactic PMMA at at least 60%.
- 3. Material according to Claim 1, wherein the M blocks comprise reactive monomers, which include glycidyl methacrylate or tert-butyl methacrylate.
- 4. Material according to Claim 1, wherein the Tg of the B blocks is 30 less than 0°C.

Material according to Claim 4, wherein the Tg of the B blocks is less than 40°C.

35 6. Material according to Claim 5, wherein the B blocks consist essentially of 1,4-polybutadiene.

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- Material according to Claim 4, wherein the dienes of the B block are hydrogenated.
- 8. Material according to Claim 4, wherein the B block consists of poly(butyl acrylate).
 - 9. Material according to Claim 1, wherein the Tg or the m.p. of S is greater than 23°C.
- 10 10. Material according to Claim 9, wherein the Tg or the m.p. of S is greater than 50°C.
 - Material according to Claim 10, wherein S is polystyrene.
- Material according to Claim 1, wherein the number-average molar mass of the block copolymer S-B-M may be between 10,000 g/mol and 500,000 g/mol.
 - 13. Material according to Claim 12, wherein the number-average molar mass of the block copolymer S-B-M may be between 20,000 g/mol and 200,000 g/mol.
 - 14. Material according to Claim 1, wherein the proportion of impact modifier is 1 to 35% for 99 to 65% of resin (A) respectively.
 - 15. Material according to Claim 14, wherein the proportion of impact modifier is 4 to 25% for 96 to 75% of resin (A) respectively.
- 16. Material according to Claim 1, wherein the impact modifier comprises at least one block copolymer S-B-M and at least one polymer selected from the diblock copolymers S-B.
 - 17. Material according to Claim 16, wherein the S and B blocks of the diblock S-B are those of Claim 1.

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- Material according to Claim 1, wherein the impact modifier also 19. comprises at least one triblock S-B-S selected from the linear triblocks S-B-S and the star-shaped triblocks S-B-S.
- Material according to Claim 1, wherein all or part of the triblock S-B-M is replaced with a pentablock M-B-S-B-M.
- Material according to Claim 1, wherein the aromatic vinyl resin 21. constituting the (A) is selected from polystyrene and impact polystyrene.
- Material according to Claim 1, wherein the PPO to aromatic vinyl 22. resin weight ratio is between 1/9 and 9/1.
- Material according to Claim 22, wherein the ratio is between 3/7 23. and 7/3.

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